The "Conventional" Hypothesis:
Deficit Estimates, Savings Rates, Twin Deficits and Yield Curves

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A noteworthy paper by Peter Orszag, Robert Rubin and Allen Sinai, presented at the American Economics Association January 4, 2004, proposes four major hypotheses about the predicted impact of sustained federal budget deficits.[1]

The first hypothesis, in it original version, used to assert that actual budget deficits increased actual long-term interest rates. Orszag, Rubin and Sinai replace that model with two new versions which relate only *estimated* future budget deficits to the spread between short and long-term rates, or perhaps to *real* interest rates.

The second hypothesis argues that smaller budget deficits and larger budget surpluses, regardless whether they are accomplished by higher tax rates or restrained spending, will automatically produce more domestic private investment.

The third hypothesis argues that larger budget deficits cause larger trade or current account deficits. This echoes the "twin deficits" hypothesis of the 1980s, except that deficits are now said to make the dollar go *down* rather than up.

The fourth hypothesis suggests that market participants may fail to notice budget deficits for years yet experience an unsettling loss of confidence due to heretofore unnoticed fiscal problems. This "risk of financial and fiscal disarray" bears a strong resemblance to the endless "hard landing" scares of the 1980s.[2] The authors' proposed solution is also the same – a substantial increase in tax rates is said to be needed as a "preemptive strike" to maintain confidence.

Orszag, Rubin and Sinai refer to the first three hypotheses as "the conventional view":

> Under the conventional view, budget deficits decrease national saving, which reduces domestic investment and increases borrowing from abroad. Interest rates play a key role in how the economy adjusts. The reduction in national saving raises domestic interest rates, which dampens investment and attracts capital from abroad. The external borrowing that helps to finance the budget deficit is reflected in a larger current account deficit . . . The reduction in domestic investment (which lowers productivity growth) and the increase in the current account deficit (which requires that more of the returns from the domestic capital stock accrue to foreigners) both reduce future national income . . .

The authors augment this conventional view with another that is supposedly novel and unconventional. This fourth hypothesis used to be called "the hard landing scenario," but is now relabeled "the risk of financial and fiscal disarray." Specifically, they claim sustained budget deficits may cause "depreciation of the exchange rate and decline in confidence [which] can reduce stock prices." The authors advocate a "preemptive strike" against estimated future budget deficits – in the form of higher tax rates on investors – ostensibly to improve investor confidence.

These are not new ideas. The first two hypotheses (about deficits reducing savings and raising interest rates) were previously associated with proponents of high tax rates in the 1950s, particularly President Eisenhower. The third (twin deficits) was most forcefully articulated in the 1980s and mid-1990s by Martin Feldstein, but also by former Treasury Secretary Larry Summers. The fourth (proposing to use higher tax rates to restore investor confidence) originated in 1931 with President Hoover.

Old Vinegar in New Bottles

The original version of the first hypothesis predicted that *actual* deficits would raise *actual* long-term interest rates. Brave remnants of that version still persist in a 1993 paper by Gale and Orszag. But this newer paper by Orszag, Rubin and Sinai (and another by Anne-Marie Brook of the OECD)[3] totally redefine the supposed link between budget deficits and interest rates in three ways:

First, they argue that interest rates are affected by *estimated future* deficits rather than actual present deficits. One cited study, by Thomas Laubach, assumes "deficits projected several years into the future may be informative about the longer-run fiscal position, and may therefore approximate investors' expectations."[4] Yet is difficult to see how estimated deficits could have effects that actual deficits do not have, since past estimates have been wildly inaccurate.

Budget forecasting errors follow a cyclical pattern, becoming too optimistic near cyclical peaks and too pessimistic in the early stages of recovery, such as 1984, 1994 and probably 2004. As the economy gets better, so does the budget. As the actual budget gets better, so do estimated future budgets.

The 1984 Budget estimated that the deficit would reach $308 billion by 1987, but it actually fell to $149.7 billion that year with few major policy changes except lower tax rates. Even in early 1986, the CBO had quickly slashed projected deficits for the following three years by $411 billion in only five months.[5] Estimates are eventually adjusted to conform to reality.

During President Clinton's first budget address in 1993, he said, "10 years from now . . . when Members of Congress come here, they'll be devoting over 20 cents on the dollar to interest payments."[6] Yet actual interest expense turned out to by only 7.1 cents on the dollar in 2003 – down from 12.5 in 2000 when the budget was in surplus.[7] Debt service is the true burden of deficit financing, but it is now unusually *low*. Just as homeowners have refinanced their mortgages, so has the U.S. Treasury.

Interest expense was not the only spending estimate that turned out to be grossly exaggerated in the 1993 projections. In response to such erroneous forecasts, Congress then enacted the second "tax increase" in two years. Both tax laws were mainly focused on increasing marginal tax rates on individuals (directly and by phasing-out deductions).

In the fall of 1994 when -- *after* tax rates had been increased in 1991 and 1993 -- the Congressional Budget Office still continued to overestimate the deficit in the year 2000 by 5.3 percent of GDP – a $520 billion exaggeration for a single year. Higher tax rates in 1993 had nothing to do with why those 1994 deficit projections were so hugely exaggerated. The two new tax brackets of 36 and 39.6 percent were projected to raise only $22.5 billion in 1995 (much smaller than typical estimating errors one year ahead) and the long-term 1994 budget projections already incorporated such static revenue estimates.[8]

At the more recent business cycle peak, in early 2001, the CBO erred in the opposite direction, as it routinely does at cyclical peak – overestimating future surpluses by trillions. If interest rates actually depended on such unreliable estimates (as Orszag, Rubin and Sinai contend) then bond yields would have been extremely low in early 2001 and much higher today. Yet interest rates were substantially higher in the period of estimated future surpluses and fell to record lows after those estimates had been revised to project large future deficits. This model had already failed before it was published.

Gale and Orszag respond saying, "the fact that long-term nominal interest rates are low does not mean they would not have been even lower." But that amounts to turning this into a non-falsifiable hypothesis -- what Karl Popper called a metaphysical statement. "Those among us who are unwilling to expose their ideas to the hazard of refutation," wrote Popper, "do not take part in the scientific game."[9]

The authors' second variation on the first hypothesis is to downplay the obviously invisible effect of deficits on *nominal* interest rates by saying, "the overall level of *nominal* interest rates is affected by many factors [emphasis in the original]." That suggests that while deficits may not raise nominal interest rates they nonetheless do raise real interest rates. One reason for switching from nominal to real rates, as Anne-Marie Brook notes, is that "most empirical work conducted in the past ten years estimates the impact on U.S. *real* long-term interest rates."[10] Gale and Orszag cite Laubach, for example, but neglect to mention that this study tried to estimate what *real* interest rates are *expected* to be five years in the future. Expectations aside, changing the subject from nominal to real interest rates is not a trivial distinction. *If estimated deficits raised real interest rates but not nominal interest rates that must mean bigger budget deficits cause inflation to fall.*

As a matter of historical fact, there actually was a connection between bigger deficits and lower inflation in the U.S. It is not that rising deficits caused inflation to fall in the eighties, but that reducing inflation after 1981 caused deficits to rise. Lower inflation ended the previous revenue windfalls from bracket creep and overtaxation of inflated inventory profits and capital gains. And the Federal Reserve's decision to hold the fed funds rate at 9-16 percent from 1981 to 1984 (far above the inflation rate) greatly increased federal interest expense and also caused profits and employment to contract until 1983-84 when tax rate reductions were phased in. Laubach acknowledges that, "both deficits and interest rates rose sharply, with the latter arguably driven at least in

part by the Volcker disinflation." He does not seem to realize that the *former* – deficits – were "driven at least in part by the Volcker disinflation."

The hypothesis that CBO budget projections affect *real* interest rates has the additional handicap of being inconsistent with the facts. As Rik Hafer demonstrated graphically, "During the late 1990s when the projected budget surplus was increasing steadily, the 10-year real interest rate was rising."[11] This should have been no surprise. Real interest rates are always highest when the economy is expanding briskly (e.g., 1983-89 and 1996-2000) and lowest when the economy is stagnant or declining (e.g., Japan in recent years).

But Orszag, Rubin and Sinai prefer to change the subject from long-term rates, whether real or nominal, to the yield curve: "For purposes of assessing the effects of future budget surpluses or deficits, it may be more insightful to examine the spread between long-term and short-term interest rates. That spread is currently relatively high . . . and has increased substantially since the 2001 tax cut." Brook also views this interest rate spread as an alternative to claiming deficits raise real interest rates. "The most common approach is to use some measure of the level of real interest rates as the dependent variable," she writes. "A related approach is to model the interest rate spread (long minus short). . ."

The interest rate spread is not at all related to real interest rates, either in theory or fact. Real interest rates were *extremely* high in 1979-81, for example, but the yield curve was then inverted. Real interest rates were unusually low in 1992-93 and 2002-2003, but the yield curve was steep.

Changing the dependent variable from long-term interest rates to the gap between long and short rates is even more troublesome that changing from nominal to real yields. *If estimated future deficits only affect the spread between short-term and long-term interest rates, then larger projected deficits must cause short-term rates to fall.* Projected future budget surpluses would likewise be associated with *higher* short-term rates. This is not what Orszag, Rubin and Sinai say, but it *is* what their hypothesis says.

The yield curve hypothesis is logically obligated to thank rising budget deficits for the dramatic drop in both real and nominal short-term interest rates "since the 2001 tax cut," and therefore the wider spread between long-term and short-term rates.

In reality, any observed connection between yield curves and deficit projections is simply due to the fact that both are cyclical.[12] Long-term interest rates *always* fall when short-rates do but *never* fall nearly as much, so the yield curve steepens whenever the Fed eases. The Fed eases during and shortly after recessions and that is also when the CBO and OMB rush to revise their deficit projections upwards.

The yield curve is a component of the index of leading indicators. A steep yield curve – which Orszag, Rubin and Sinai depict as an ominous symptom of future deficits – is universally viewed as an excellent leading indicator of future prosperity. A flat or

inverted yield curve – which the authors associate with surpluses – "significantly outperforms other financial and macroeconomic indicators in predicting recession."[13] The authors surely do not intend to claim budget surpluses cause recessions, nor that deficits cause prosperity, but that is what their yield curve hypothesis implies.

The hypothesis that projected deficits steepen the yield curve and the contradictory hypothesis that they raise real interest rates both undermine the central claim that projected deficits reduce economic growth. Steep yield curves forecast strong economic growth, not weakness. And as long as the yield curve is not inverted (indicating unsustainably tight monetary policy), interest rates are high in real terms only when the pace of economic growth (and therefore the real return on capital) is also high.[14]

Despite all these strained efforts to link unreliable deficit projections to yield curves or real interest rates, political efforts to demonize deficits still rely on their alleged effect on *actual* interest rates. Rivlin and Sawhill, for example, illustrate the burden of deficits by saying, "monthly payments on a thirty-year fixed-rate mortgage will rise from $1,500 to $1,663 when interest rates rise from 6 to percent."[15] But monthly payments would not rise at all if the yield curve merely became steeper (and therefore more optimistic) or if the mortgage rate increased only in real terms (because inflation fell).

It is hard to avoid the conclusion that this debate is not about facts at all, but about theory. Stubborn convictions about an invisible link between deficits and bond yields rest on "the quantity theory of bonds": Treasury bonds are thought to be valued for their scarcity, like rare stamps or antiques, making the market value of Treasury bonds vary inversely with the volume of bonds marketed. This theory is never applied to other debt instruments. Those who advance the quantity theory of Treasury bonds do not claim that the huge volume of mortgages issued in the year 2002 must have pushed mortgage rates higher.

In reality, people do not buy a country's bonds because of their scarcity (unless default risk is involved) but because they expect the return – including coupon and capital gains – to at last match the risk-adjusted return of alternative investments. Those alternative investments include all of the world's stocks, bonds, bills, commodities and real estate. Governments do not borrow from the current *flow* of national savings, as the authors assume, but from the world's *stock* of assets.

Interest rates are also reduced rather than increased by lower marginal tax rates, for the same reason tax-exempt money market funds pay a lower interest rate than a taxable fund. Orszag, Rubin and Sinai's "financial disarray" analysis worries that "depreciation of the dollar . . . would almost surely reduce stock prices" (which would have been terrible investment advice in 2003). Ostensibly to help keep stock prices higher, they propose to raise investors' marginal tax rates. But stock prices only increased after marginal tax rates (including those on dividends and capital gains) came down. Mehra and Prescott find that much of their famous "equity premium puzzle" was because "reductions in marginal tax rates account for the high return on corporate equity in the [1960-2000] period."[16]

Long-term nominal interest rates have been very closely linked to inflation, but inflation has not been linked to budget deficits (except inversely in the 1980s). To shore up their fourth "financial disarray" hypothesis, Orszag, Rubin and Sinai favorably quote a CBO speculation that "consumer prices could shoot up" because of deficits. This quaint notion that deficits are inherently inflationary arose in the 1950s from traditional Keynesian analysis which treated deficits as an equivalent "stimulus" to Fed easing, thus blurring a vital distinction between the Treasury selling bonds and the Federal Reserve buying bonds. The U.S. debt is less than 39 percent of GDP; Japan's debt is three times that large. But few people are worrying about hyperinflation in Japan.

Sustained changes in *real* interest rates are driven by the real return on invested capital, which makes promises to boost growth with lower real interest rates illogical and inconsistent with experience.[17]

International arbitrage ensures that any national interest rate could never be determined by domestic fiscal conditions, except to the extent that those conditions might imply greater risks of default or of future exchange rate losses. Brook's first table shows that long-term U.S. interest rates rose by an average of 2.4 percentage points in three recent cycles of central bank tightening. But long-term interest rates also rose by 2.4 percentage points in Canada, Japan and the U.K. (there were slight differences between Germany, France and Italy, but only before they formed a common currency bloc). Financial markets are *global* and not driven by the national government's portion of domestic borrowing.[18]

The quantity theory of bonds is clearly irrelevant for major countries – even those with large accumulated debts, such as Japan.

Taxes Are Not Savings

The second hypothesis is really two – that budget deficits must reduce the overall ratio of national savings to GDP and that such a decline in domestic savings must reduce domestic investment or make U.S. citizens more indebted to foreigners. The central thesis dates back to the late 1950s.

In President Eisenhower's budget address of January 1960, he defended keeping punitive Korean War tax rates in place because, "sound fiscal and economic policy requires a budget surplus . . . to increase the supply of savings available for the productive investment so essential to continued economic growth." That was three months before the third recession in six years. Republicans were harshly punished in the 1960 elections. Paul Samuelson, JFK's top advisor, called Eisenhower's fiscal policy "investment in sadism."[19]

Eisenhower's hypothesis that budget surpluses raise both savings and private investment has been reborn as the centerpiece of the paper under discussion. Gale and Orszag even suggest that the effect of deficits on interest rates is "at least partially a red herring," because what matters is that savings and investment must fall "regardless of whether interest rates are affected." But that evasion begs all the questions, since higher interest rates were supposed to be the mechanism that discourages investment and (in all previous "twin deficits" theories) drive the dollar *higher*.[20] Besides, they offer no direct evidence on whether or not national savings rates actually rose in any country at any time after deficits were replaced by surpluses. "For the most part, we summarize findings obtained in earlier surveys. . . [and] focus on a few key highlights from the literature."[21] There are notable omissions, such as Robert Eisner's 1994 study in *The Review of Economics & Statistics* finding no effect of deficits on savings.[22] John Seater's 1993 survey is mentioned, but not the fact that it found the evidence "inconsistent with the view that government debt is positively related to interest rates."[23]

Those earlier surveys (mostly from 1987-93) did not have the benefit of three ideal natural experiments in recent years when the U.S., U.K. and Australia moved from prolonged, large deficits to several years of surplus. The swing from deficit to surplus was sizable in each case, about 4 to 5 percent of GDP. If the second hypothesis were correct, the national savings rate should have increased by 4 to 5 percentage points following the swing from deficit to surplus. Instead, the national savings rate rose briefly for only one year in the U.K. and declined slightly in the U.S. and Australia.

From 1981 to 1989, when U.S. deficits averaged 3.8 percent of GDP, the national savings rate was 18.2 percent of GDP. From 1998 to 2001, while the U.S. budget was in surplus, national savings was 17.5 percent of GDP.[24]

The U.K. national savings rate averaged 17.8 percent from 1984 to 1987, when the budget was in deficit, but dipped to 17.2 percent in 1988-89 when the budget moved into surplus. British budget deficits subsequently averaged 4.7 percent of GDP from 1990 to 1997, followed by surpluses averaging 1.5 percent of GDP from 1998 to 2001. The savings rate was 15.4 percent during the eight years of chronic deficits and 16 percent during the period of surpluses. But all of the latter gain was in a single year, 1998. Savings in 1999-2001 dropped back to 15.4 percent.

Australia had an unbroken string of deficits that averaged 2.9 percent of GDP from 1986 to 1997. The deficits were followed by surpluses averaging 1.1 percent of GDP from 1998 to 2001. The savings rate during the period of deficits was 19 percent. The savings rate during the period of surpluses was 18.9 percent.[25]

It should not be surprising that taking more money from the private sector and giving it to the government does not improve the budgets of *both* the private and government sectors. After all, income taxes fall heavily on the main sources of saving -- corporations and high-income households.

Japan's long series of huge budget deficits was eventually followed by a reduction in private savings in recent years. But that was because Japanese households have been offered a near-zero return on stocks, bonds and bank deposits. Corporate profits (therefore retained earnings) have also been quite weak. Casey Mulligan shows that savings *is* sensitive to *after-tax* returns on investments in general, but that such returns are *not* captured by the interest rate on Treasury bonds.[26] The prolonged absence of profitable investment opportunities undoubtedly contributed to Japan's budget deficits, but it is implausible to suggest that it was *caused* by those deficits.

It may be impolite to observe that even Japan's huge, sustained budget deficits (averaging 7 percent of GDP in recent years) did *not* result in high interest rates, a steep yield curve, a collapsing yen, or a big current account deficit, as the Orszag-Rubin-Sinai theory predicts.

The Orszag-Rubin-Sinai "taxes equal savings" doctrine was popular in development economics in the early sixties, when it was called "forced savings." A popular textbook of that era, *Economic Development* by Meier and Baldwin, explained that "increased taxation . . . allows the government to force savings and reduce disposable incomes. A difficulty with this method, however, is that while involuntary saving is increased, voluntary saving may be diminished. . ."[27] Meier and Baldwin's simple explanation of why more taxes do not equal more savings did not require "Ricardian Equivalence" – the theory that people have perfect foresight about future tax obligations to service the added debt. To the extent that tax collectors reduce households' after-tax income, their savings *must* fall unless they can somehow save a *higher* percentage of their shrunken incomes. Taxpayers cannot save money they no longer have.

Even if deficits did reduce savings, would that reduce domestic investment? The authors contradict themselves on this point, because if investment was closely tied to domestic savings then there would be no need for external finances and no impact on the current account deficit.

Some people have found it plausible to theorize that each billion of government borrowing is drained from a supposedly fixed "savings pool" and therefore reduces the amount left over for private investment.[28] Others found it plausible to theorize that domestic investment would instead have to be financed by a net inflow of foreign direct and portfolio investment. But these two theoretical conjectures contradict each other.

The belief that a high rate of savings ensured rapid economic growth is the main reason many U.S. economists in the sixties predicted that Soviet industry would outproduce U.S. industry by 1980 or 1990.[29] The high savings rate in Japan is also why others in the eighties predicted the Japanese economy would be larger than the U.S. economy before now. Economic growth is not as simple as that.

Unrelated Twins

Orszag, Rubin and Sinai attempt to revive the spectre of "twin deficits," which was so popular in the eighties. This third hypothesis was central to perennial speculations about a "hard landing" which resembled what the authors now relabel as "financial disarray" (the fourth hypothesis).

Before the U.S. budget moved into surplus, the same accounting model now being recycled by Orszag, Rubin and Sinai was used by Martin Feldstein, Larry Summers and others to make three very explicit and unconditional predictions. They predicted that moving from deficits to surpluses would increase the national savings rate, reduce long-term interest rates and eliminate the current account deficit. Not one of those predictions came true.[30]

In 1995, former Reagan adviser Martin Feldstein argued that "with a lower level of current and expected future government borrowing, real interest rates would decline and the dollar would come down with them. . . . A lower budget deficit would thus reduce our trade deficit."[31]

Like the notion that more taxes equal more saving and investment, however, the twin deficits hypothesis has rarely been presented as a hypothesis whose veracity depended on any facts. The twin deficits hypothesis was and is presented as an unquestionable accounting identity. This was convenient, because the sharp cyclical reduction in budget deficits from 1991 to 2000 provided an excellent time to test the theory, if facts mattered at all.

In 1991, the budget deficit was 4.7 percent of GDP, up from 3.9 percent in 1989. The current account, however, had moved from a deficit of 1.8 percent in 1989 to a small surplus in 1991.

In each subsequent year the budget deficit grew smaller and the current account grew larger. By 1998, the budget surplus equaled 0.8 percent of GDP but the current account deficit was 2.5 percent. By 2000, the budget surplus equaled 2.4 percent of GDP but the current account deficit was 4.4 percent.

It would be difficult to discover any hypothesis that produced worse predictions than the twin deficits creed, with the possible exception of the prediction that moving from budget surpluses to deficits between 2000 and 2003 threatened to make mortgage rates to rise.

The twin deficits hypothesis fares no better in cross-country comparisons than it does in the U.S. time series. The February 7, 2004 edition of *The Economist* estimated that Australia had a budget *surplus* of 0.8 in 2003 but a current account *deficit* of 6.2 percent of GDP. Japan had a budget *deficit* of 7.4 percent of GDP but a current account *surplus* of 3 percent of GDP. Australia's government bond yield was 5.69 percent, while Japan's was 1.28 percent.

The Bogey of Foreign Debt

The twin deficits hypothesis has been thoroughly tested and proven thoroughly incorrect. The U.S. has had a current account deficit in most recent years, and Japan had a current account surplus, but both of those developments were correlated with the relative pace of U.S. economic growth rather than budget deficits. When the U.S. grows faster than other major economies, such as Japan, U.S. imports grow faster than exports. If and when other countries' economies speed up, so does their demand for U.S. exports.

Even if there was some invisible connection between budget deficits and current account deficits, the related claims of Orszag, Rubin and Sinai that a net inflow of foreign investment reduces future U.S. assets and income would still be invalid.

Orszag, Rubin and Sinai say, "The increase in the current account deficit (which requires that more of the returns from the domestic capital stock accrue to foreigners) [will] reduce future national income." If foreigners invest in the U.S., according to Gale and Orszag, "the capital owned by Americans declines."

This reasoning appears to take the amount of capital invested in the U.S. as fixed, so that foreigners could buy claims to that fixed stock of capital only at the expense of Americans. Physical capital financed by selling equity or bonds to foreigners is not merely a zero-sum transfer of ownership of claims to a fixed capital stock but a means of financing *additions* to that capital stock.

One obvious problem with alluding to all foreign investment as a U.S. debt to foreigners is that much of the net capital inflow is really equity – direct investment and purchases of shares in U.S. firms.

When Nissan built a factory in Tennessee that certainly did not reduce "the capital owned by Americans." If that foreign investment is profitable, profits from the U.S. plant will now accrue to Nissan stockholders as dividends or capital gains. Yet Americans can and do own shares in Nissan (and Americans own more shares in the French drug company Aventis than the French do). And many Americans work at factories and offices with foreign names on them. It makes little sense to say Americans would be even better off if they had built all the foreign factories in America with their own savings. Americans cannot produce Nissans, BMWs and foreign-brand drugs without some foreign help (and permission).

Our current account deficit means foreign exporters are choosing to use some of their export earnings to invest in the U.S. rather than purchase U.S. goods and services immediately. As Matthew Higgin and Thomas Klitgaard of the New York Fed point out, that extra investment from the current account deficit produces long-term U.S. income gains "from the indirect effects of higher investment spending on economy-wide employment"[32]

The Old "Confidence" Game

The last idea of Orszag, Rubin and Sinai -- raising taxes to restore confidence -- was last articulated by Peter G. Peterson in an October 1987 cover feature in *Atlantic Monthly* which argued that the stock market crashed because investors suddenly noticed there was a ($70 billion smaller) budget deficit. That curious idea did little harm that time, but the same cannot be said of 1931 when this same theory was put into practice by President Herbert Hoover.

At the end of 1931, a year after signing a huge and disastrous increase in taxes on trade, President Hoover asked Congress for a temporary income tax increase, raising income tax rates to levels not seen since the previous depression of 1920-21. "Nothing is more important than balancing the budget," reasoned President Hoover. It was, he said, "indispensable to the restoration of confidence and to the very start of economic recovery....We cannot maintain public confidence nor stability of the Federal Government without undertaking some temporary tax increases."

In a preemptive strike designed to restore confidence, marginal tax rates were raised in June 1932 from 1-25 percent to 4-63 percent. Yet revenue from the individual income tax dropped from $834 million in 1931 to $427 million in 1932 and to $353 million in 1933. Consistent with his theory, Mr. Hoover in late 1933 asked Congress to add a national sales tax. He said, "to assure a balanced budget ...excise taxes should be extended to cover practically all manufacturers at a uniform rate, except necessary food." That time Congress did not go along, and neither did the electorate.[33]

The old "confidence" game was not helpful to the economy or to President Hoover in1931-33. Renaming it a "preemptive strike" does not improve its chances of success.

Compared With What?

Those who cling to the various and variable hypotheses about how budget deficits supposedly affect interest rates, savings, exchange rates and the current account have a tiresome habit of ignoring criticism by claiming critics are just saying "deficits don't matter." Deficits do matter, but not in *any* of the ways Orszag, Gale, Rubin and Sinai imagine.

Debt service is not a free lunch, although it now amounts to only 1.4 percent of GDP, down from 2.3 percent in 2000. Government borrowing is much like any other borrowing, such as mortgages or corporate bonds. Like other borrowing, the debt service cost of government borrowing has to be compared with the alternatives (e.g., the alternative to a young family taking out a mortgage is to keep paying rent).

For the federal government, the alternatives to borrowing are to restrain spending or attempt to collect more taxes (even though the income tax share of GDP has been stubbornly immune to such attempts). It is pointless to assert that U.S. taxpayers would

be better off by raising current taxes on the basis of projected future borrowing without comparing all costs to taxpayers of increasing marginal tax rates, including potential damage to the economy (and therefore to actual tax receipts).

Writing in *Tax Notes* February 3, 2003, Gale and Orszag said, "A cut in marginal tax rates will generally have two sets of effects on future national income. First, the tax cut will affect [increase] labor supply, human capital accumulation, saving, investment, entrepreneurship and so on. Second, the reduction in revenues will raise the deficit and reduce national savings . . . . For the tax cut to have a net positive effect on economic growth, the effects on labor supply, savings, etc., must be larger than the drag created by the increased deficit. Similar findings apply to deficits created by spending increases."

These "two effects" are inherently inconsistent with each other. To the extent that reductions in marginal rates have beneficial effects on economic growth, as the authors acknowledge, those reductions in tax rates must also result in a tax base that ends up larger than otherwise. "A fair assessment [of the evidence]," wrote Gale, "would conclude that well-designed tax policies can raise growth."[34] The tax base would therefore be enlarged, even aside from reduced avoidance, and tax revenues might also be enlarged. If a larger tax base is taxed at a lower average (not marginal) rate, the net effect on revenue is ambiguous. That ambiguity makes it incorrect for Gale and Orszag to *assume* a long-term "reduction in revenues." For the same reason, the authors' key assumption that lower taxes today must be fully offset by higher taxes tomorrow is also invalid, as are their cited simulations from a nonmarginal model that depends on that assumption (the 1987 Auerbach-Kotlikoff model).

The U.S. increased the highest marginal income tax rates in 1991, directly and by phasing-out deductions and exemptions. Two new upper-income tax brackets were added in 1993. Yet tax revenues were not visibly increased. Receipts from the individual income tax averaged 8.2 percent of GDP from 1988 to 1990, when the top tax rate was 28 percent, 7.8 percent in 1991-92 after the Bush tax increase. The economy was in recession for the first two quarters of fiscal 1991, so we should have expected that tax receipts would recover by 1993, regardless of the tax increase. Yet revenues were only 7.7 percent of GDP in 1993, 7.8 percent in 1994 and 8.1 percent in 1995 – lower than in 1989 (8.3 percent) before the two "tax increases." Revenues did finally surge in 1997-2000, but much of that revenue gain was from capital gains taxed at the reduced rate of 20 percent.

Federal revenues from the individual income tax have been a nearly constant share of GDP (and of personal income) since 1952, regardless whether the top tax rate was 91 percent or 28 percent and regardless whether loopholes were opened or closed. The individual income tax varies cyclically from about 7.5 to 9 percent of GDP, largely reflecting swings in the stock market, but it shows no significant connection to how high or low the highest tax rate is on upper incomes (I call this "Reynolds' Law"). Since taxes on individual income are a nearly constant share of GDP, and taxes on corporate income vary with profits, it follows that the only way to achieve a sustained increase in real federal revenue is by adopting policies conducive to sustained increases in real GDP.

This absence of any relationship between top tax rates and revenues is most revealing when focusing on individual income taxes, excluding many increases in the Social Security and Medicare tax rates and base. Yet there is also no apparent relationship between income tax changes and the ratio of *all* taxes to GDP. Rudolph Penner and Eugene Steurle remark that, "the federal tax burden has seldom been allowed to exceed 19 percent. Every time that level has been breached, taxes have been cut significantly."[35] The implication that the ratio of taxes to GDP would have risen well above 19 percent were it not for reductions in tax rates is extremely misleading. After all, taxes reached 20 percent only in 1944-45, when tax rates were almost confiscatory (94 percent) and compliance was high due to patriotism and rationing. Federal taxes were 16.2 percent of GDP in 1959 when Eisenhower was defending 91 percent tax rates, 18.7 percent in 1967 after the deep and broad Kennedy tax cuts, and 18.3 percent in 1989 after two rounds of major tax rate reductions under President Reagan.

Sustained, non-cyclical variations in the tax share of GDP have not been associated with legislated tax cuts or increases except to the extent that tax policy affected the denominator of that ratio (by helping or hurting the growth of real GDP). Aside from the stock boom of 1997-2000, the only time the federal share of GDP exceeded 19 percent was just before and during recessions, when GDP slowed or fell in real terms – 1952, 1969-70 and 1980-82. The tax share declined for a while after every recession, partly because taxes are paid on income earned in the prior year. Yet the overall tax share of GDP was back above 18 percent in 1977-79 and 1987-89 without any "tax increase."

Why have past changes in the higher marginal tax rates – ranging from 28 to 91 percent -- had no discernable effect in raising or lowering the tax share of personal income or GDP? The only possible answers are that higher tax rates either discourage many of the affected people from earning as much income as otherwise, or that higher tax rates encourage many to receive income in ways not reported to the IRS (e.g., by switching from salary to perks or by taking out a larger mortgage).

Studies by Feenberg and Poterba, Feldstein and Lindsey have shown that the amount of taxable income reported is extremely sensitive to the highest marginal tax rates. Their critics merely debate the source of that sensitivity (the extent to which it may represent tax avoidance rather than reduced effort) and its duration (the extent to which it may reflect deferring rather than avoiding taxation). One of those critics, Emmanuel Saez, examined behavioral responses, mainly for 1996-2000, "such as labor supply decisions, career choices and savings decisions." He finds "behavioral responses to changes in marginal tax rates [were] concentrated at the top of the income distribution."[36] That certainly does not make the behavioral responses unimportant, since the top 1 percent of taxpayers earned 17.5 percent of all income in 2001 and paid 33.9 percent of all federal income tax.[37] And it is at the top of the income distribution where prominent political figures claim it would be possible to raise substantially more revenues by raising tax rates only on high-income filers.

Saez concludes that the rapid rise of top incomes in the late 1990s "appears too large to be *solely* the direct consequence of . . . supply-side effects." Yet nobody ever said income growth depends "solely" on tax policy. There were unanticipated windfalls from exercised stock options during the tech stock boom, for example, although that was partly an *indirect* consequence of the lower tax on capital gains. Saez finds it "particularly surprising" that high incomes grew while stocks soared, since the top tax on ordinary income was higher in 1996-2000 than it had been in 1988-92. But the tax on capital gains was *lower* than it had been over the previous ten years. In any case, the existence of stock market windfalls in 1996-2000 is entirely irrelevant to the question of whether or not high marginal tax rates encourage revenue-losing behavioral responses, such as premature retirement or aggressive tax avoidance. In fact, any effect of high tax rates on tax avoidance is virtually ruled out by the way Saez measures income -- *before* tax deductions and adjustments.

Like the Democratic candidates for President, Aaron, Gale and Orszag propose to reverse 2001 income tax changes "that benefit high-income filers." But it turns out that "high-income" means "the top four marginal tax rates" (e.g., putting the 25 percent rate back up to 28 percent). For single people, "high income" starts at a taxable income of $29,050 in 2004. Even so, their static revenue estimate from raising *all* of the top four tax rates is just 0.4 percent of GDP in 2014. Their estimate from taxing dividends and capital gains at the tax rates *before* 2001 is only 0.2 percent of GDP. Those increased tax rates would not have to do nearly as much damage to the economy and stock market as I believe they would to end up raising little or no revenue over time.[38]

Taxes, Spending and Economic Growth

The central theme of Orszag, Rubin and Sinai -- that higher tax rates can improve growth by raising saving and investment – may still be "conventional" (accepted as a matter of convention) at the International Monetary Fund or in some elementary textbooks, but it is quite *unconventional* when it comes to serious research on the causes of economic growth. Such research assigns considerable importance to the *structure* of taxation and to the level and composition of government spending, but not to whether that spending is financed by taxes or debt.

Cross-country empirical studies, such as *Economic Growth* by Robert Barro and Xavier Sala-i-Martin and the *Global Competitivenesss Report* from the World Economic Forum, find no significance in budget deficits *per se*. In contrast with Orszag, Rubin and Sinai, growth economists do not treat tax policy and spending policy as two equally viable devices for changing budget deficits. They treat increases in distortive taxation as a *negative* influence on economic growth and reduction in government purchases and transfers as a *positive* influence.

Consider a recent study of 18 countries by Alberto Alesina of Harvard, Silvia Ardagna of Wellesley College, Robert Perotti of the European University Institute and Fabio Schianantarelli of Boston College. They found, "First, increases in public spending increase labor costs and reduce profits. As a result, investment declines as well

. . . . Second, increases in taxes reduce profits and investment . . . Labor taxes have the largest impact on profits and investment. Third, . . .fiscal stabilizations that have led to an increase in growth consist mainly of spending cuts, particularly in government wages and transfers, while those associated with a downturn in the economy are characterized by tax increases."[39]

The 1960 notion that growth depends on balanced budgets is nowhere to be found in the lengthy new OECD study, *The Sources of Economic Growth in OECD Countries*. The marketing blurb for that study notes that, **"**Growth patterns through the 1990s and into this decade have turned received wisdom on its head. . . . with the United States notably drawing further ahead of the field." The OECD's chief economist, Iganzaio Visco, writes that "One of the most important lessons to emerge from this work is that . . . excessive tax burdens distort proper resource allocation." In particular, the OECD study goes on, "high personal income tax rates can discourage entrepreneurship."[40]

Such microeconomic effects of tax policy and spending policy can be seriously misunderstood by placing undue emphasis on the gap between planned or realized tax receipts and expenditures – i.e., the estimated or actual budget deficit.

Government purchases of real resources reduce the availability of labor, equipment and real property and raise their costs to private businesses. That is why Alesina and his colleagues find that countries which cut government spending, such as Ireland, have had much faster economic growth than countries which embarked on costly public works schemes, such as Japan. This "crowding out" is *real*, not financial. It *cannot* be reduced by funding government consumption with taxes rather than borrowing.

Government transfer payments are generally given only on the condition that recipients do not work too much, save too much or plant too many crops. If productive effort or saving is even allowed by recipients of transfer payments, the payments are typically reduced or (in the case of Social Security) taxed at a higher rate. Such programs are a disincentive for those who receive them and also for taxpayers who fund them. These disincentive effects are *not* reduced by funding transfers with taxes rather than borrowing.

Demographic projections imply that unfunded promises of Social Security and Medicare benefits could impose such a heavy tax burden on younger workers that their incentives to work, go to college and prepare for their own retirement would be severely impaired. Since the threat of demoralizing tax rates on workers and savers is itself the essence of the "aging crisis," converting that threat into a reality by speeding-up the taxation of workers *cannot* solve this problem. The December 2003 CBO long-term budget outlook, for example, projects individual tax receipts rising to about 15 percent of GDP by the year 2050 under current law, up from a norm of 8 percent, on the assumption that progressive taxes on labor and savings can and will be tapped to fund programs heretofore financed by flat-rate taxes on labor. There is nothing in U.S. experience to suggest it would be remotely feasible to double the share of GDP collected by taxes on individual incomes, except perhaps by depressing the denominator of the ratio (GDP).

What is genuinely unsustainable is not estimated future deficits but estimated future transfer payments.

Conclusion

Orszag, Rubin and Sinai have offered four hypotheses which purport to predict the effects of estimated future budget deficits on yield curves, real interest rates, the national savings rate, the current account deficit, and investor confidence. If these were not intended to yield testable predictions, they would just be metaphysical speculations.

Several of these hypotheses depend on a highly unusual chain of causality, such as requiring that deficits cause inflation to fall in order to raise the real interest rates, or requiring that deficits cause short-term interest rates to fall in order to steepen the yield curve. Several hypotheses are inconsistent with each other, or with previous versions of this whole exercise in conventionality (twin deficits theorists such as Larry Summers used to postulate that deficits made the dollar rise, not fall). All of the four central hypotheses are completely inconsistent with all direct evidence from U.S. time series and international comparisons.

In summary, neither actual nor projected budget deficits raise real or nominal interest rates, steepen the yield curve, reduce national savings, cause "twin deficits," or make the dollar go down or up. The logic behind such speculations is flawed and contradictory. The evidence is nonexistent.

NOTES

[1] Peter R. Orszag, Robert E. Rubin & Allen Sinai, "Sustained Budget Deficits: Longer-Run U.S. Economic Performance and the Risk of Financial and Fiscal Disarray," paper presented at the AEA-NAEFA Joint Sessions (January 5, 2004). http://www.brookings.org/dybdocroot/views/papers/orszag/20040105.pdf Accessed February 4, 2004.

[2] Lester Thurow & Laura Tyson, "The Economic Black Hole," *Foreign Policy* (October 1987).

[3] Anne-Marie Brook, "Recent and Prospective Trends in Real Long-Term Interest Rates: Fiscal Policy and Other Drivers," OECD Economics Department Working Paper No. 367 (September 29, 2003). http://www.olis.oecd.org/olis/2003doc.nsf/43bb6130e5e86e5fc12569fa005d004c/b2f3929d5bd0425cc1256db0004eccb0/$FILE/JT00150309.PDF

[4] Thomas Laubach, "New Evidence on the Interest Rate Effects of Budget Defictis and Debt," Board of Governors of the Federal Reserve System (May 2003), p.2. http://www.federalreserve.gov/pubs/feds/2003/200312/200312pap.pdf

[5] Alan Reynolds, "Who Really Understands What's Going On With Budget Numbers?" *The Wall Street Journal* (March 27, 1986).

[6] Quoted in Francis X. Cavanaugh, *The Truth About the National Debt: Five Myths and One Reality*, Boston, Harvard Business School Press (1996) p. 14.

[7] *U.S. Budget 2005, Historical Tables*, Table 6.1 pp. 115-116. http://www.whitehouse.gov/omb/budget/fy2005/pdf/hist.pdf

[8] Alan Reynolds, "Where the Surplus Came From," *The Wall Street Journal* (July 9, 1999).

[9] Karl R. Popper, *The Logic of Scientific Discovery*, N.Y., Science Editions (1961) p. 280. See also my comments on the epistemological shortcomings of Gale-Orszag "evidence" -- such as quoting famous people, textbooks, and the assumptions (rather than predictive value) of econometric models -- in *The International Economy* symposium on this topic (Summer 2003) http://www.findarticles.com/cf_dls/m2633/3_17/106423903/p1/article.jhtml Accessed February 4, 2004.

[10] Brook, *op. cit*., pp. 17-18.

[11] Rik Hafer, "The Deficit Debate," *The Wall Street Journal* (January 14, 2003).

[12] Stephen Entin & Paul Evans, "Deficits, Tax Cuts, Interest Rates and Investment: Do Large Deficits Raise Interest Rates?" Institute for Research on the Economics of Taxation *Congressional Advisory* (October 23, 2002) ftp://ftp.iret.org/pub/ADVS-139.PDF & 140.PDF.

[13] Arturo Estrella & Frederic S. Mishkin, "The Yield Curve as a Predictor of U.S. Recessions," Federal Reserve Bank of New York, *Current Issues in Economics and Finance* (June 1996). http://www.lynixco.com/yield.pdf

[14] Alan Reynolds, "Monetary Policy by Trial and Error," in *The Supply-Side Revolution 20 Years Later*, Joint Economic Committee (2000) Figure 4, p. 17.

[15] Alice M. Rivlin & Isabel Sawhill, *Restoring Fiscal Sanity*, D.C., Brookings Institution 2004, p. 9.

[16] Rajnish Mehra & Edward C. Prescott, "The Equity Premium Puzzle in Retrospect," National Bureau of Economic Research *Working Paper* 9525 (February 2003) p. 52.

[17] Alan Reynolds, "Do Budget Deficits Raise Long-Term Interest Rates?" Cato Institute *Tax & Budget Bulletin* (February 2002). http://www.cato.org/pubs/tbb/tbb-0202-1.pdf

[18] Some economists have estimated a miniscule effect of national deficits on *worldwide* interest rates, which acknowledges the integrated market for financial assets (though not their substitutability at the margin for real assets). Such estimates depend on the model's assumptions. Two British theoreticians devised a neoclassical model in which "lower taxes and larger deficits early on result in a lower global rate of interest." Willem H. Buiter & Anne C. Sibert, "Cross-Border Tax Externalities: Are Budget Deficits Too Small?" The National Bureau of Economic Research *Working Paper* 10110 (November 2003).

[19] Herbert Stein, *The Fiscal Revolution in America*, D.C., The American Enterprise Institute (1996) pp. 350 & 369.

[20] C. Fred Bergsten, for example, presented a paper "Can the United States Afford the Tax Cuts of 2001?" at the American Economics Association January 5, 2002. He said, "a major risk of the tax cut legislation of 2001 is of course that, by inducing higher long-term interest rates, it will reduce investment . . ." If interest rates are now to be dismissed as a "red herring," then so should such unsupported claims about investment being so sensitive to interest rates.

[21] William G. Gale & Peter R. Orszag, "Economic Effects of Sustained Budget Deficits," *National Tax Journal* (September 2003). P. p. 473.

[22] Robert Eisner, "National Saving and Budget Deficits," *The Review of Economics and Statistics* (1994), Vol. 76, Issue 1, pp. 181-86.

[23] John Seater, "Ricardian Equivalence," *Journal of Economic Literature* (March 1993), p. 176.

[24] *Economic Report of the President* (February 2004) Table B-32, p. 323. The figures are for gross saving as a percent of GDP. Peter G. Peterson, Jeffrey Frankel and others refer to *net* savings as a percent of *gross* national income, which subtracts depreciation from the numerator but not the denominator. Because modern production involves relatively more equipment that it written-off quickly estimated depreciation has nearly doubled each decade, thus making the ratio of net savings to gross income increasingly misleading over time. Even so, the Table cited above shows that net savings at 6 percent of gross income in 1981-89 and 5.6 percent in 1998-2001. A ratio of net savings to net income would be more meaningful. Yet it is the actual dollar gap between savings and investment that has to be financed with a capital account surplus.

[25] *OECD Economic Outlook* (December 2003)
Budget data: http://www.oecd.org/dataoecd/5/51/2483816.xls
Savings data: http://www.oecd.org/dataoecd/5/48/2483858.xls

[26] Casey B. Mulligan, "Capital, Interest and Aggregate Intertemporal Substitution," National Bureau of Economic Research *Working Paper* 9373 (December 2002). Some studies purporting to find no link between savings and interest rates do not even account for the fact that a rising interest rate creates a capital loss for bondholders, making the interest rate a totally inaccurate measure of even the pretax return.

[27] Gerald M. Meier & Robert E. Baldwin, *Economic Development*, N.Y., John Wiley & Sons (1962) p. 340.

[28] "Let us suppose that the pool of savings is fixed in size. It follows that, because more money has to be diverted from this pool to the government, less is available to companies for investment." Tim Congdon, *The Debt Threat*, N.Y., Basil Blackwell (1988) p. 84. This empty metaphor of a savings "pool" suggests a *stock* of something (dollar bills?), but savings is a *flow*. If the savings rate is unchanged but income rises then savings also rise.

[29] "Soviet industrial output will match ours within three decades. And if one takes a less optimistic view of the relative rates of growth . . . the catching-up period is shortened to two decades." Robert W. Campbell, *Soviet Economic Power*, N.Y., Houghton Mifflin (1960) p. 194. Other prominent economists in the 1960s and 1970s who argued that forced savings through steep taxes and/or central planning created economic growth included Robert Heilbroner, Lester Thurow and James Tobin . They are quoted in Alan Reynolds, "International Comparisons of Taxes and Government Spending," in S.T. Easton & M.A. Walker (eds) *Rating Global Economic Freedom*, Vancouver, The Fraser Institute (1992) pp. 360-86.

[30] Alan Reynolds, "The Fiscal-Monetary Policy Mix," *The Cato Journal* (Fall 2001) http://www.cato.org/pubs/journal/cj21n2/cj21n2-11.pdf

[31] Quoted in Alan Reynolds, "So Who's Afraid of a Deficit?" *National Review* (May 14, 2001) http://www.findarticles.com/cf_0/m1282/9_53/73640872/p1/article.jhtml

[32] Matthew Higgins & Thomas Klitgaard, "Viewing the Current Account Deficit as a Capital Inflow," Federal Reserve Bank of New York, *Current Issues in Economics and Finance* (December 1998). http://www.newyorkfed.org/research/current_issues/ci4-13.pdf Accessed February 4, 2004.

[33] Alan Reynolds, "Taxes: Unbalanced Amendment," *Reason* (June 1995) http://reason.com/9506/reynolds.jun.shtml

[34] William G. Gale, "Notes on Taxes, Growth, and Dynamic Analysis," in *The Future of American Taxation: Tax Notes 30th Anniversary,* Special Report 2003, p. 32.

[35] Rudolph G. Penner & C. Eugene Steurle, *Budget Crisis at the Door*, The Urban Institute (2004) p. 24.

[36] Emmanuel Saez, "Reported Incomes and Marginal Tax Rates, 1996-2000: Evidence and Policy Conclusions," in James Poterba (ed.), *Tax Policy and the Economy*, Vol. 18 (forthcoming 2004). http://www.nber.org/books/tpe18/saez12-2-03.pdf

[37] "New Income Tax Data Show Greater Progressivity," The Tax Foundation *Tax Bites* (February 6, 2004) http://www.taxfoundation.org/prtopincome.html

[38] Henry J. Aaron, William G. Gale & Peter R. Orszag, "Meeting the Revenue Challenge," in Rivlin & Sawhill, op. cit. p. 85.

[39] Alberto Alesina, *et. al*., "Fiscal Policy, Profits and Investment," *The American Economic Review* (June 2002), p. 572.

[40] *The Sources of Economic Growth in OECD Countries*, Paris, OECD (2003) pp. 3 & 21. http://www1.oecd.org/publications/e-book/1103011E.PDF